

IN THE CLAIMS:

Claim 1 (currently amended): A screw with stabilized strength ~~characterized in that~~  
wherein:

a screw head of said screw is provided with a bit engaging groove that is formed in a Y shape divided into three ~~substantially~~ equal parts in a circumferential direction at a specified radial distance from a central portion of said screw head,

groove widths of respective branching grooves that extend in a radial direction from a central portion of said bit engaging groove are formed so that said widths gradually expand, thus producing substantially equal intervals with a width dimension of boundary portions which are between respective adjacent branching grooves, ~~[[and]]~~

respective outer circumferential end wall surfaces of said bit engaging groove are formed in a substantially perpendicular attitude to a specified depth from an opening edge part, and step parts are then displaced downward toward a central portion of a screw neck from perpendicular lower edge portions are respectively provided, with an intersecting central portion being formed as a substantially circular conical bottom surface,

a bottom of the intersecting central portion of the of the bit engaging groove is formed as a bottom surface which is a circular conical recessed part, and

boundary portions between the respective adjacent branching grooves of the bit engaging groove are formed so that the boundary portions are formed by planar side wall surfaces that intersect at obtuse angles showing left-right symmetry with respect to respective branching grooves in the central portion of the bit engaging groove.

Claim 2 (canceled).

Claim 3 (canceled).

Claim 4 (canceled).

Claim 5 (canceled).

Claim 6 (canceled).

Claim 7 (canceled).

Claim 8 (canceled).

Claim 9 (currently amended): A screw with stabilized strength ~~characterized in that~~  
wherein:

a screw head of said screw is provided with a bit engaging groove that is formed in a Y shape divided into three ~~substantially~~ equal parts in a circumferential direction at a specified radial distance from a central portion of said screw head,

groove widths of respective branching grooves that extend in a radial direction from a central portion of said bit engaging groove are formed so that said widths gradually expand, thus producing substantially equal intervals with a width dimension of the boundary portions which are between respective adjacent branching grooves, ~~and~~

respective outer circumferential end wall surfaces of said bit engaging groove are formed in a substantially perpendicular attitude to a specified depth from an opening edge part, ~~and displaced portions are then displaced downward toward a central portion of a screw neck from perpendicular lower edge portions are provided, with an intersecting central portion being formed as a substantially circular conical bottom surface, and~~

a bottom of the intersecting central portion of the bit engagement groove is formed as a bottom surface which is a circular recessed part, and

a surface of said screw head that forms the boundary portions which are between respective adjacent branching grooves of said bit engaging groove is formed as an inclined surface portion that is inclined gradually downward toward the central portion of said bit engaging groove boundary portions between the respective adjacent branching grooves of the bit engaging groove are formed so that the boundary portions are bent side wall surfaces showing left-right symmetry with respect to the respective branching grooves in the central portion of the bit engaging groove.

Claim 10 (currently amended): ~~[[A]] The screw with stabilized strength characterized in that:~~ according to claim 1 or 9 wherein

~~a screw head of said screw is provided with a bit engaging groove that is formed in a Y shape divided into three substantially equal parts in a circumferential direction at a specified radial distance from a central portion of said screw head,~~

~~groove widths of respective branching grooves that extend in a radial direction from a central portion of said bit engaging groove are formed so that said widths gradually expand, thus producing substantially equal intervals with a width dimension of boundary portions which are between respective adjacent branching grooves,~~

~~respective outer circumferential end wall surfaces of said bit engaging groove are formed so that opening edge part sides of said wall surfaces expand in width at a specified angle and are substantially perpendicular to a specified depth, and are then displaced downward toward a central portion of a screw neck from perpendicular lower edge portions, with an intersecting central portion being formed as a substantially circular conical bottom surface, and~~

a surface of said screw head that forms the boundary portions which are between respective adjacent branching grooves of said bit engaging groove is formed as an inclined surface portion that is inclined gradually at an angle of 20° to 50° downward toward the central portion of said bit engaging groove.

Claim 11 (currently amended): The screw with stabilized strength according to Claim ~~[[9 or 10]]~~ 1 or 9 wherein, ~~characterized in that the inclined surface portion formed on the surface of said screw head that forms the boundary portions which are between respective adjacent branching grooves of said bit engaging groove is constructed so that the inclined surface portion is inclined at an angle of 20° to 50° toward the central portion of said bit engaging groove from inner diameter sides of respective outer circumferential end edge parts of said bit engaging groove~~ an opening edge part of the respective outer circumferential end wall surfaces of the bit engaging groove is formed as an inclined surface that inclines upward at an angle of 15 to 35° from an inner diameter side toward outwardly radial direction.

Claim 12 (currently amended): A combination of a screw with stabilized strength and a screwdriver bit, wherein:

in said screw with stabilized strength is characterized in that:

a screw head of said screw is provided with a bit engaging groove that is formed in a Y shape divided into three ~~substantially~~ equal parts in a circumferential direction at a specified radial distance from a central portion of said screw head,

groove widths of respective branching grooves that extend in a radial direction from a central portion of said bit engaging groove are formed so that said \$widths gradually expand, thus producing substantially equal intervals with a width dimension of boundary portions which are between respective adjacent branching grooves, [[and]]

respective outer circumferential end wall surfaces of said bit engaging groove are formed in a substantially perpendicular attitude to a specified depth from an opening edge part, and ~~step parts are then displaced downward toward a central portion of a screw neck from perpendicular lower edge portions~~ are respectively provided, with an intersecting central portion being formed as a substantially circular conical bottom surface;

a bottom of the intersecting central portion of the of the bit engaging groove is formed as a bottom surface which is a circular conical recessed part, and

boundary portions between the respective adjacent branching grooves of the bit engaging groove are formed so that the boundary portions are formed by planar side wall surfaces that intersect at obtuse angles showing left-right symmetry with respect to respective branching grooves in the central portion of the bit engaging groove; and

~~said screwdriver bit is characterized in that said screwdriver bit~~ comprises a tip end blade part, vane parts, inclined surface and step parts, and protruding parts, wherein

said vane parts are respectively formed on said tip end blade part and have end edge parts that have a ~~substantially~~ right-angled shape to obtuse angular shape and engage with respective branching grooves of said bit engaging groove formed in a Y shape divided into three ~~substantially~~ equal parts in the circumferential direction in said screw head of said screw with stabilized strength,

said inclined surface and step parts are respectively formed on tip ends of said respective vane parts [[and]] so as to match the displaced portions step parts of said bit engaging groove, and

said protruding parts are formed to intersect and connect in a circular conical shape in a central axial part of the screwdriver bit, said protruding parts corresponding to the bottom surface of the circular conical recessed part.

Claim 13 (canceled).

Claim 14 (currently amended): A combination of a screw with stabilized strength and a screwdriver bit, wherein:

in said screw with stabilized strength is characterized in that:

a screw head of said screw is provided with a bit engaging groove that is formed in a Y shape divided into three ~~substantially~~ equal parts in a circumferential direction at a specified radial distance from a central portion of said screw head,

groove widths of respective branching grooves that extend in a radial direction from a central portion of said bit engaging groove are formed so that said widths gradually expand, thus producing substantially equal intervals with a width dimension of the boundary portions which are between respective adjacent branching grooves, and

respective outer circumferential end wall surfaces of said bit engaging groove are formed in a substantially perpendicular attitude to a specified depth from an opening edge part, and ~~displaced portions are then~~ displaced downward toward a central portion of a screw neck from perpendicular lower edge portions are provided, with an intersecting central portion being formed as a substantially circular conical bottom surface, and

a bottom of the intersecting central portion of the bit engagement groove is formed as a bottom surface which is a circular recessed part, and

~~a surface of said screw head that forms the boundary portions which are between respective adjacent branching grooves of said bit engaging groove is formed as an inclined surface portion that is inclined gradually downward toward the central portion of said bit engaging groove~~ boundary portions between the respective adjacent branching grooves of the bit engaging groove are formed so that the boundary portions are bent side wall surfaces showing left-right symmetry with respect to the respective branching grooves in the central portion of the bit engaging groove; and

~~said screwdriver bit is characterized in that said screwdriver bit~~  
comprises a tip end blade part, vane parts, inclined surface and step parts, and protruding parts, wherein

said vane parts are respectively formed on said tip end blade part and have end edge parts that have a substantially right-angled shape to obtuse angular shape and engage with respective branching grooves of said bit engaging groove formed in a Y shape divided into three substantially equal parts in the circumferential direction in said screw head of said screw with stabilized strength,

said inclined surface and step parts are respectively formed on tip ends of said respective vane parts ~~[[and] so as to match the displaced portions of said bit engaging groove, and~~

said protruding parts are formed to intersect and connect in a circular conical shape in a central axial part of the screwdriver bit, said protruding parts corresponding to the bottom surface of the circular recessed part.

Claim 15 (currently amended): ~~[[A]]~~ The combination of a screw with stabilized strength and a screwdriver bit according to claim 12 or 14, wherein:

in said screw with stabilized strength is characterized in that:

~~a screw head of said screw is provided with a bit engaging groove that is formed in a Y shape divided into three substantially equal parts in a circumferential direction at a specified radial distance from a central portion of said screw head;~~

~~groove widths of respective branching grooves that extend in a radial direction from a central portion of said bit engaging groove are formed so that said widths gradually expand, thus producing substantially equal intervals with a width dimension of boundary portions which are between respective adjacent branching grooves;~~

~~respective outer circumferential end wall surfaces of said bit engaging groove are formed so that opening edge part sides of said wall surfaces expand in width at a specified angle and are substantially perpendicular to a specified depth, and are then displaced downward toward a central portion of a screw neck from perpendicular lower edge portions, with an intersecting central portion being formed as a substantially circular conical bottom surface, and~~

~~a surface of said screw head that forms the boundary portions which are between respective adjacent branching grooves of said bit engaging groove is formed as an inclined surface portion that is inclined gradually downward toward the central portion of said bit engaging groove; and~~

~~said screwdriver bit is characterized in that said screwdriver bit comprises a tip end blade part, vane parts, inclined parts, and protruding parts, wherein~~

~~said vane parts are respectively formed on said tip end blade part and have end edge parts that have a substantially right angled shape to obtuse angular shape and engage with respective branching grooves of said bit engaging groove formed in a Y-shape divided into three substantially equal parts in the circumferential direction in said screw head of said screw with stabilized strength;~~

~~said inclined parts are respectively formed on tip ends of said respective vane parts and match the displaced portions of said bit engaging groove, and~~

~~said protruding parts are formed to intersect and connect in a circular conical shape in a central axial part of the screwdriver bit a surface of said screw head that forms the boundary portions which are between respective adjacent branching grooves of said bit engaging groove is formed as an inclined surface portion that is inclined at an angle of 20° to 50° downward toward the central portion of said bit engaging groove~~

Claim 16 (currently amended): The combination of a screw with stabilized strength and a screwdriver bit according to any one of Claims 12 through 15, characterized in that: claim 12 or 14 wherein

~~in said screw with stabilized strength, said bit engaging groove is provided with respective step parts that are displaced at an inclination downward toward the central portion of said screw neck from the perpendicular lower edge portions of respective outer circumferential end wall surfaces, and an intersecting center part of said step parts that are displaced at an inclination is formed as a substantially circular conical bottom surface; and~~

~~in said screwdriver bit, step parts that match said step parts that are displaced at an inclination in said bit engaging groove are formed on the tip ends of said respective vane parts, and protruding parts are formed to intersect and connect in a circular conical shape in the central axial part of the screwdriver bit an opening edge part of the respective outer~~

circumferential end wall surfaces of branching grooves of said bit engaging groove is formed as an inclined surface that inclines upward at an angle of 15 to 35° from an inner diameter side toward outwardly radial direction.

Claim 17 (canceled).

Claim 18 (currently amended): ~~[[The]]~~ A header punch used to manufacture the screw with stabilized strength according to Claim 1, ~~characterized in that~~ wherein said header punch comprises:

protruding parts which have perpendicular end wall parts used to form respective outer circumferential end wall surfaces of a bit engaging groove formed in a Y shape divided into three equal ~~[[parts]]~~ branching grooves in a circumferential direction in a screw head and to form a width of each branching groove to be equal to a width dimension of adjacent boundary portions so that the wall surfaces are perpendicular to a specified depth, and

step parts that are used to form steps parts, which displace and incline in the branching grooves, and respectively provided at tip ends of said protruding parts, and a circular conical protruding part which is provided on tip ends of said protruding parts and used to form the circular conical bottom surface of the bit engaging groove.

Claim 19 (currently amended): ~~The header punch used to manufacture the screw with stabilized strength according to Claim 2, characterized in that said header punch comprises:~~ according to claim 18 or 23, wherein

said protruding parts respectively having inclined end wall parts and said perpendicular end wall parts that are provided for forming respective outer circumferential end wall surfaces of a bit engaging groove formed in a Y shape divided into three equal parts in a circumferential direction in a screw head, said inclined end wall parts being used to expand opening edge part sides in width at a specified angle, and said perpendicular end wall parts being used to form said wall surfaces so that the wall surfaces are perpendicular to a specified depth; and



~~a circular conical protruding part which is provided on tip ends of said protruding parts and used to form the circular conical bottom surface of the bit engaging groove~~ are provided with inclined end wall parts that are used for forming the opening edge part of the respective branching bit engaging grooves so as to be an inclined surface that inclines upward at an angle of 15 to 35° from an inner diameter side toward outwardly radial direction.

Claim 20 (currently amended): The header punch ~~used to manufacture a screw with stabilized strength according to Claim 18 or 19, characterized in that~~ 23, wherein inclined protruding parts are provided which are used to form inclined surface portions that are inclined gradually downward at an angle of 20 to 50° toward a central portion of the bit engaging groove, with respect to boundary portions which are between respective protruding parts that are adjacent in a circumferential direction of base portions of said protruding parts.

Claim 21 (canceled).

Claim 22 (canceled).

Claim 23 (ncw): A header punch used to manufacture the screw with stabilized strength according to Claim 9, wherein said header punch comprises:

protruding parts which have perpendicular end wall parts used to form respective outer circumferential end wall surfaces of a bit engaging groove formed in a Y shape divided into three equal branching grooves in a circumferential direction in a screw head and to form a width of each branching grooves to be equal to a width dimension of adjacent boundary portions so that the wall surfaces are perpendicular to a specified depth, and

protruding parts that are used to form inclined step parts that are inclined in the branching grooves are respectively provided at tip ends of said protruding parts, and a circular protruding part which is provided on tip ends of said protruding parts and used to form the bottom of the circular recessed part of the bit engaging groove.